

July 12, 2012

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – National Site

Dear Mr. Nations:

Please find attached the April 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the National Industries, Inc. Reclamation Area Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets**.
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,



Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Kathy Rangen
Jason Gunter
Ty Morris
Kevin Lombardozzi

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Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

April 2012



Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

April 2012



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GLOSSARY OF TERMS

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM ₁₀	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM ₁₀ – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

*This standard must be exceeded more than once a year to constitute a violation.



TSP and Lead Concentration Summary

National
Park Hills, Missouri

2012

Date	TSP Big River #4 ($\mu\text{g}/\text{m}^3$)	TSP Ozark #1 ($\mu\text{g}/\text{m}^3$)	TSP Soccer #2 ($\mu\text{g}/\text{m}^3$)	TSP Water Plant #3 ($\mu\text{g}/\text{m}^3$)	LEAD Big River #4 ($\mu\text{g}/\text{m}^3$)	LEAD Ozark #1 ($\mu\text{g}/\text{m}^3$)	LEAD Soccer #2 ($\mu\text{g}/\text{m}^3$)	LEAD Water Plant #3 ($\mu\text{g}/\text{m}^3$)
4/2/12	78	64	60	63	0.040	0.010	0.033	0.017
4/3/12	31	30	22	31	0.007	0.012	0.008	0.007
4/4/12	33	28	29	32	0.012	0.006	0.009	0.010
4/5/12	35	22	23	24	0.010	0.000	0.007	0.006
4/6/12	22	27	22	21	0.006	0.011	0.010	0.000
4/9/12	36	25	26	23	0.033	0.011	0.024	0.011
4/10/12	37	30	39	33	0.038	0.007	0.058	0.039
4/11/12	44	36	41	33	0.029	0.014	0.018	0.016
4/12/12	51	50	39	43	0.008	0.000	0.010	0.013
4/13/12	38	38	41	44	0.000	0.000	0.007	0.000
4/16/12	24	24	20	23	0.008	0.006	0.015	0.048
4/17/12	18	14	14	14	0.010	0.008	0.009	0.006
4/18/12	22	22	17	17	0.009	0.008	0.012	0.008
4/19/12	37	36	35	35	0.020	0.010	0.013	0.009
4/20/12	21	11	18	13	0.000	0.000	0.000	0.000
4/23/12	28	34	25	20	0.024	0.026	0.043	0.018
4/24/12	38	43	INVALID	41	0.017	0.038	INVALID	0.046
4/25/12	52	63	55	44	0.016	0.013	0.022	0.009
4/26/12	48	41	43	95	0.020	0.006	0.023	0.041
4/27/12	35	33	35	33	0.012	0.000	0.011	0.017
4/30/12	24	19	19	19	0.012	0.000	0.008	0.011
Monthly Average	36	33	31	33	0.016	0.009	0.017	0.016
Mar 2012					0.016	0.024	0.049	0.017
Feb 2012					0.017	0.017	0.029	0.025
Rolling 3-month Average					0.02	0.02	0.03	0.02
					3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$			
								0.15

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.



Particulate Summary

National
Park Hills, Missouri

2012

Date	PM ₁₀ Big River #4 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Ozark #1 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Soccer #2 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Water Plant #3 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ NAAQS ($\mu\text{g}/\text{m}^3$)
3-Apr	21	19	17	18	150
6-Apr	12	12	11	11	150
9-Apr	19	15	16	16	150
12-Apr	20	17	16	17	150
15-Apr	40	40	42	34	150
18-Apr	11	10	11	10	150
21-Apr	INVALID	9	10	8	150
24-Apr	14	17	14	14	150
27-Apr	25	22	22	30	150
30-Apr	15	15	14	14	150
Monthly Average	20	17	18	17	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4557

Big River Site #4- Primary

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T_{av} C	P_{av} mmHg	P_t mmHg	Ratio P_t/P_{av}	Q_s m^3/min	Q_{std} m^3/min	Elapsed Time hr	Sample Volume V_{std} m^3	Mass Concentrations TSP $\mu\text{g}/\text{m}^3$	Lead $\mu\text{g}/\text{m}^3$
4/2/2012	8552225	0.1350	70	24	738.0	36.1	0.951	1.244	1.210	23.72	1723	78	0.040
4/3/2012	8552216	0.0526	11	20	740.5	35.6	0.952	1.238	1.226	23.06	1696	31	0.007
4/4/2012	8552206	0.0568	21	17	738.4	35.1	0.952	1.232	1.231	23.28	1719	33	0.012
4/5/2012	8552997	0.0626	17	11	740.6	34.5	0.953	1.223	1.248	23.59	1767	35	0.010
4/6/2012	8552988	0.0391	11	9	748.1	34.2	0.954	1.219	1.268	23.65	1800	22	0.006
4/9/2012	8552977	0.0627	58	13	747.6	34.7	0.954	1.227	1.256	23.25	1752	36	0.033
4/10/2012	8552968	0.0663	68	11	747.9	34.4	0.954	1.222	1.263	23.54	1784	37	0.038
4/11/2012	8552959	0.0780	52	7	750.5	34.0	0.955	1.216	1.277	23.38	1791	44	0.029
4/12/2012	8552949	0.0926	14	10	749.3	34.3	0.954	1.221	1.268	23.68	1801	51	0.008
4/13/2012	8552940	0.0686	< 10	12	746.3	34.5	0.954	1.225	1.257	23.70	1788	38	0.000
4/16/2012	8552930	0.0428	13	14	745.5	34.8	0.953	1.229	1.250	23.65	1773	24	0.008
4/17/2012	8552922	0.0323	18	13	751.5	34.7	0.954	1.227	1.264	23.63	1792	18	0.010
4/18/2012	8552912	0.0383	15	15	747.7	34.9	0.953	1.230	1.251	23.55	1768	22	0.009
4/19/2012	8552903	0.0642	34	17	742.4	35.2	0.953	1.234	1.236	23.70	1757	37	0.020
4/20/2012	8593293	0.0366	< 10	12	741.6	34.5	0.953	1.224	1.249	23.69	1775	21	0.000
4/23/2012	8593283	0.0496	43	9	745.9	34.2	0.954	1.220	1.263	23.64	1791	28	0.024
4/24/2012	8593274	0.0664	30	15	739.7	35.0	0.953	1.230	1.238	23.65	1754	38	0.017
4/25/2012	8593265	0.0908	28	19	735.7	35.5	0.952	1.236	1.219	23.65	1730	52	0.016
4/26/2012	8593255	0.0822	34	22	741.0	35.8	0.952	1.240	1.222	23.31	1708	48	0.020
4/27/2012	8593246	0.0621	21	12	744.8	34.6	0.954	1.225	1.254	23.74	1786	35	0.012
4/30/2012	8593237	0.0417	21	20	743.6	35.5	0.952	1.238	1.232	23.62	1746	24	0.012

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	36	0.016
Standard Deviation:	14	0.012
Maximum:	78	0.040
Minimum:	18	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

$P_t = (((Temp \text{ in } ^\circ\text{K} \times Temp \text{ Slope}) + Temp \text{ Int.}) * 1.868$

$P_t = ((Temp \text{ in } ^\circ\text{K} * 0.0664) + (-0.4213)) * 1.868$

$P_o/P_s = \text{pressure ratio of } P_t \text{ and } P_{av} = 1 - P_t/P_{av}$

Q_s = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2939

National Site #1 Ozark Insulation

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
4/2/2012	8552227	0.1093	18	24	738.0	36.1	0.951	1.240	1.206	23.62	1710	64	0.010
4/3/2012	8552217	0.0519	20	20	740.5	35.6	0.952	1.233	1.222	23.63	1732	30	0.012
4/4/2012	8552201	0.0481	11	17	738.4	35.1	0.952	1.228	1.227	23.63	1740	28	0.006
4/5/2012	8552999	0.0390	< 10	11	740.6	34.5	0.953	1.219	1.244	23.47	1752	22	0.000
4/6/2012	8552989	0.0483	19	9	748.1	34.2	0.954	1.215	1.264	23.64	1793	27	0.011
4/9/2012	8552972	0.0449	20	13	747.6	34.7	0.954	1.223	1.252	23.74	1783	25	0.011
4/10/2012	8552963	0.0536	13	11	747.9	34.4	0.954	1.218	1.259	23.71	1791	30	0.007
4/11/2012	8552954	0.0661	24	7	750.5	34.0	0.955	1.213	1.273	23.75	1814	36	0.014
4/12/2012	8552944	0.0892	< 10	10	749.3	34.3	0.954	1.217	1.263	23.39	1773	50	0.000
4/13/2012	8552935	0.0673	< 10	12	746.3	34.5	0.954	1.221	1.253	23.66	1779	38	0.000
4/16/2012	8552925	0.0427	11	14	745.5	34.8	0.953	1.225	1.246	23.66	1768	24	0.006
4/17/2012	8552923	0.0248	13	13	751.5	34.7	0.954	1.223	1.260	23.65	1787	14	0.008
4/18/2012	8552907	0.0395	14	15	747.7	34.9	0.953	1.226	1.247	23.65	1769	22	0.008
4/19/2012	8552905	0.0627	17	17	742.4	35.2	0.953	1.230	1.232	23.34	1725	36	0.010
4/20/2012	8593288	0.0203	< 10	12	741.6	34.5	0.953	1.220	1.245	23.61	1764	11	0.000
4/23/2012	8593278	0.0601	46	9	745.9	34.2	0.954	1.216	1.259	23.69	1789	34	0.026
4/24/2012	8593269	0.0757	67	15	739.7	35.0	0.953	1.226	1.232	23.73	1754	43	0.038
4/25/2012	8593260	0.1087	23	19	735.7	35.5	0.952	1.232	1.215	23.48	1712	63	0.013
4/26/2012	8593250	0.0706	10	22	741.0	35.8	0.952	1.236	1.218	23.38	1708	41	0.006
4/27/2012	8593241	0.0585	< 10	12	744.8	34.6	0.954	1.221	1.250	23.50	1762	33	0.000
4/30/2012	8593232	0.0324	< 10	20	743.6	35.5	0.952	1.234	1.227	23.60	1738	19	0.000

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	33	0.009
Standard Deviation:	14	0.009
Maximum:	64	0.038
Minimum:	11	0.000

NOTES

Filter Blank	Nominal Airflow							Tolerance ≤ μm ³					
4/30/2012	8593231	0.0008	< 10	25	760.0	36.2	0.962	1.243	1.243	24.00	1790	0.4	0.000

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.))*1.868

P_f = ((Temp In °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4474

National Site #2 - Soccer Field

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _{av}	Q _s m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
4/2/2012	8552228	0.1017	56	24	738.0	36.1	0.951	1.226	1.193	23.72	1698	60	0.033
4/3/2012	8552218	0.0388	13	20	740.5	35.6	0.952	1.219	1.208	23.81	1726	22	0.008
4/4/2012	8552202	0.0492	15	17	738.4	35.1	0.952	1.214	1.213	23.37	1701	29	0.009
4/5/2012	8553000	0.0403	12	11	740.6	34.5	0.953	1.205	1.229	23.47	1731	23	0.007
4/6/2012	8552990	0.0400	17	9	748.1	34.2	0.954	1.201	1.250	23.68	1776	22	0.010
4/9/2012	8552973	0.0463	42	13	747.6	34.7	0.954	1.208	1.237	23.68	1758	26	0.024
4/10/2012	8552964	0.0698	103	11	747.9	34.4	0.954	1.204	1.245	23.77	1775	39	0.058
4/11/2012	8552955	0.0728	32	7	750.5	34.0	0.955	1.199	1.258	23.74	1792	41	0.018
4/12/2012	8552945	0.0685	17	10	749.3	34.3	0.954	1.203	1.249	23.42	1755	39	0.010
4/13/2012	8552936	0.0707	12	12	746.3	34.5	0.954	1.206	1.238	23.50	1746	41	0.007
4/16/2012	8552926	0.0342	26	14	745.5	34.8	0.953	1.210	1.231	23.62	1745	20	0.015
4/17/2012	8552924	0.0242	15	13	751.5	34.7	0.954	1.208	1.245	23.62	1764	14	0.009
4/18/2012	8552908	0.0301	21	15	747.7	34.9	0.953	1.212	1.233	23.65	1749	17	0.012
4/19/2012	8552906	0.0602	23	17	742.4	35.2	0.953	1.215	1.217	23.31	1702	35	0.013
4/20/2012	8593289	0.0314	< 10	12	741.6	34.5	0.953	1.206	1.230	23.61	1743	18	0.000
4/23/2012	8593279	0.0438	75	9	745.9	34.2	0.954	1.202	1.244	23.66	1766	25	0.043
4/24/2012	8593270	0.0191	15	15	739.7	35.0	0.953	1.212	1.218	4.32	316	INVALID	INVALID
4/25/2012	8593261	0.0930	37	19	735.7	35.5	0.952	1.218	1.201	23.62	1702	55	0.022
4/26/2012	8593251	0.0722	38	22	741.0	35.8	0.952	1.223	1.204	23.24	1679	43	0.023
4/27/2012	8593242	0.0622	18	12	744.8	34.6	0.954	1.206	1.235	23.65	1753	35	0.011
4/30/2012	8593233	0.0320	15	20	743.6	35.5	0.952	1.220	1.213	23.68	1724	19	0.008

Data Captured	TSP	Lead
Valid Samples:	20	20
Scheduled Samples:	21	21
Percent Data Captured:	95%	95%

Monthly Average:	31	0.017
Standard Deviation:	13	0.014
Maximum:	60	0.058
Minimum:	14	0.000

NOTES

4/24/2012 - INVALID - Mechanical Failure

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_s = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4475

National Site Water Plant #3

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T_{av} C	P_{av} mmHg	P_f mmHg	Ratio P_o/P_a	Q_a m^3/min	Q_{std} m^3/min	Elapsed Time hr	Sample Volume V_{std} m^3	Mass Concentrations TSP $\mu\text{g}/\text{m}^3$	Lead $\mu\text{g}/\text{m}^3$
4/2/2012	8552223	0.1069	28	24	738.0	36.1	0.951	1.231	1.197	23.52	1690	63	0.017
4/3/2012	8552214	0.0530	11	20	740.5	35.6	0.952	1.224	1.213	23.75	1728	31	0.007
4/4/2012	8552204	0.0546	17	17	738.4	35.1	0.952	1.218	1.217	23.68	1730	32	0.010
4/5/2012	8552995	0.0427	11	11	740.6	34.5	0.953	1.210	1.234	23.81	1763	24	0.006
4/6/2012	8552986	0.0384	< 10	9	748.1	34.2	0.954	1.206	1.254	23.80	1791	21	0.000
4/9/2012	8552975	0.0410	20	13	747.6	34.7	0.954	1.213	1.242	23.50	1751	23	0.011
4/10/2012	8552966	0.0589	69	11	747.9	34.4	0.954	1.209	1.249	23.76	1781	33	0.039
4/11/2012	8552957	0.0600	29	7	750.5	34.0	0.955	1.203	1.263	23.72	1798	33	0.016
4/12/2012	8552947	0.0770	23	10	749.3	34.3	0.954	1.208	1.254	23.74	1786	43	0.013
4/13/2012	8552938	0.0778	< 10	12	746.3	34.5	0.954	1.211	1.243	23.77	1773	44	0.000
4/16/2012	8552928	0.0405	84	14	745.5	34.8	0.953	1.215	1.236	23.79	1764	23	0.048
4/17/2012	8552920	0.0252	10	13	751.5	34.7	0.954	1.213	1.250	23.75	1781	14	0.006
4/18/2012	8552910	0.0305	14	15	747.7	34.9	0.953	1.216	1.237	23.68	1758	17	0.008
4/19/2012	8552901	0.0600	15	17	742.4	35.2	0.953	1.220	1.222	23.72	1739	35	0.009
4/20/2012	8593291	0.0236	< 10	12	741.6	34.5	0.953	1.211	1.235	23.76	1761	13	0.000
4/23/2012	8593281	0.0351	32	9	745.9	34.2	0.954	1.207	1.249	23.80	1783	20	0.018
4/24/2012	8593272	0.0708	80	15	739.7	35.0	0.953	1.216	1.222	23.75	1742	41	0.046
4/25/2012	8593263	0.0748	16	19	735.7	35.5	0.952	1.223	1.206	23.56	1705	44	0.009
4/26/2012	8593253	0.1633	70	22	741.0	35.8	0.952	1.227	1.209	23.65	1715	95	0.041
4/27/2012	8593244	0.0576	29	12	744.8	34.6	0.954	1.211	1.240	23.77	1769	33	0.017
4/30/2012	8593235	0.0332	18	20	743.6	35.5	0.952	1.225	1.218	23.78	1738	19	0.011

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	33	0.016
Standard Deviation:	19	0.015
Maximum:	95	0.048
Minimum:	13	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

$P_t = (((\text{Temp in } ^\circ\text{K} * \text{Temp Slope}) + \text{Temp Int.}) * 1.868$

$P_t = ((\text{Temp in } ^\circ\text{K} * 0.0664) + (-0.4213)) * 1.868$

P_f/P_a = pressure ratio of P_t and P_{av} = $1 - P_f/P_{av}$

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _{av}	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
4/3/2012	8552226	0.0539	11	20	740.5	35.6	0.952	1.229	1.217	23.67	1729	31	0.007
4/5/2012	8552998	0.0625	16	11	740.6	34.5	0.953	1.214	1.239	23.88	1775	35	0.009
4/10/2012	8552978	0.0696	63	11	747.9	34.4	0.954	1.214	1.254	23.93	1801	39	0.035
4/12/2012	8552950	0.0895	14	10	749.3	34.3	0.954	1.213	1.259	23.75	1794	50	0.008
4/17/2012	8552931	0.0304	17	13	751.5	34.7	0.954	1.218	1.254	23.88	1797	17	0.010
4/19/2012	8552904	0.0627	37	17	742.4	35.2	0.953	1.225	1.227	23.65	1741	36	0.021
4/24/2012	8593284	0.0642	34	15	739.7	35.0	0.953	1.221	1.227	23.83	1755	37	0.019
4/26/2012	8593256	0.0954	34	22	741.0	35.8	0.952	1.232	1.214	23.38	1702	56	0.020

Valid Samples: 8 8

Monthly Average: 38 0.016

Scheduled Samples: 8 8

Standard Deviation: 12 0.010

Percent Data Captured: 100% 100%

Maximum: 56 0.035

Minimum: 17 0.007

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

Q_a = look up table volumetric flow rate

P_{av} = average station pressure in millimeters of mercury

Q_{std} = total sample volumetric flow rate corrected to standard conditions

P_f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

V_{std} = total sample volume corrected to standard conditions

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

TSP = mass concentration in μg/std m³

P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Lead = mass concentration in μg/std m³



PM₁₀ Analysis

The Doe Run Company

Big River Site #4- Primary																				
SAMPLER ID P2952																				
Sample Date 2012	Filter ID	PM10 Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ μg/m ³									
4/3/2012	272135	0.0335	20	740.5	35.6	0.952	1.143	1.132	23.74	1612	21									
4/6/2012	272126	0.0197	9	748.1	34.2	0.954	1.126	1.172	23.69	1666	12									
4/9/2012	272117	0.0318	13	747.6	34.7	0.954	1.133	1.160	23.69	1649	19									
4/12/2012	272107	0.0328	10	749.3	34.3	0.954	1.128	1.171	23.70	1665	20									
4/15/2012	272298	0.0642	20	738.9	35.6	0.952	1.143	1.129	23.68	1604	40									
4/18/2012	272288	0.0174	15	747.7	34.9	0.953	1.136	1.156	23.64	1639	11									
4/21/2012	272277	0.0294	10	744.3	34.3	0.954	1.128	1.162	23.42	1633	INVALID									
4/24/2012	272269	0.0228	15	739.7	35.0	0.953	1.136	1.142	23.96	1641	14									
4/27/2012	272259	0.0414	12	744.8	34.6	0.954	1.131	1.158	23.68	1646	25									
4/30/2012	272250	0.0234	20	743.6	35.5	0.952	1.143	1.137	23.65	1614	15									
Valid Samples: 9	Scheduled Samples: 10	Percent Data Captured: 90%																		
NOTES																				
4/21/2012 - INVALID - Mechanical Failure; Burned Motor—Observed Smoke Deposited on Filter																				
DEFINITIONS and CALCULATIONS																				
T_{av} = average temperature in degrees Celcius P_{av} = average station pressure in millimeters of mercury $P_f = ((\text{Temp in } {}^\circ\text{Kelvin} * \text{Temp Slope}) + \text{Temp Int.}) * 1.868$ $P_f = ((\text{Temp in } {}^\circ\text{Kelvin} * 0.0664) + (-0.4213)) * 1.868$																				
P_f/P_a = pressure ratio of P_f and P_{av} = $1 - P_f/P_{av}$ Q_a = look up table volumetric flow rate Q_{std} = sample volumetric flow rate corrected to standard conditions V_{std} = sample volume corrected to standard conditions																				
<table border="1"> <tr> <td>Monthly Average: 20</td> </tr> <tr> <td>Standard Deviation: 9</td> </tr> <tr> <td>Maximum: 40</td> </tr> <tr> <td>Minimum: 11</td> </tr> </table>												Monthly Average: 20	Standard Deviation: 9	Maximum: 40	Minimum: 11					
Monthly Average: 20																				
Standard Deviation: 9																				
Maximum: 40																				
Minimum: 11																				



PM₁₀ Analysis

The Doe Run Company

National Site #1 Ozark Insulation													
SAMPLER ID	P2950	Sample Date	Filter ID	PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio P _o /P _a	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀ µg/m ³
2012	g	C	mmHg	mmHg	m ³ /min	m ³ /min	hr	m ³	µg/m ³				
4/3/2012	272133	0.0303	20	740.5	35.6	0.952	1.141	1.130	23.78	1612		19	
4/6/2012	272131	0.0197	9	748.1	34.2	0.954	1.124	1.169	23.67	1661		12	
4/9/2012	272122	0.0256	13	747.6	34.7	0.954	1.131	1.158	23.79	1652		15	
4/12/2012	272112	0.0277	10	749.3	34.3	0.954	1.126	1.168	23.71	1662		17	
4/15/2012	272103	0.0638	20	738.9	35.6	0.952	1.141	1.127	23.75	1606		40	
4/18/2012	272293	0.0159	15	747.7	34.9	0.953	1.134	1.153	23.73	1642		10	
4/21/2012	272276	0.0143	10	744.3	34.3	0.954	1.126	1.160	23.74	1652		9	
4/24/2012	272274	0.0269	15	739.7	35.0	0.953	1.134	1.139	23.76	1624		17	
4/27/2012	272264	0.0367	12	744.8	34.6	0.954	1.129	1.156	23.69	1643		22	
4/30/2012	272255	0.0245	20	743.6	35.5	0.952	1.141	1.135	23.77	1619		15	
Valid Samples:	10	Monthly Average:	17										
Scheduled Samples:	10	Standard Deviation:	9										
Percent Data Captured:	100%	Maximum:	40										
		Minimum:	9										

NOTES

Filter Blank	Nominal Airflow							Tolerance $\pm \mu\text{m}^3$			
4/30/2012	272246	0.0006	25	760.0	36.2	0.952	1.153	1.153	24.00	1660	0.4

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius

P_{av} = average station pressure in millimeters of mercury

P_f = ((Temp in °Kelvin * Temp Slope)+Temp Int.)*1.868

P_o = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_o/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = sample volumetric flow rate corrected to standard conditions

V_{std} = sample volume corrected to standard conditions



PM₁₀ Analysis

The Doe Run Company

National Site #2 - Soccer Field													
SAMPLER ID	P2949	Sample Date	Filter ID	PM10 Net Wt.	T _{av}	P _{av}	P _f	Ratio P _f /P _{av}	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀
		2012		g	C	mmHg	mmHg		m ³ /min	m ³ /min	hr	m ³	µg/m ³
4/3/2012	272132	0.0280		20	740.5	35.6	0.952	1.138	1.127	23.77	1607	17	
4/6/2012	272130	0.0187		9	748.1	34.2	0.954	1.121	1.166	23.79	1665	11	
4/9/2012	272121	0.0261		13	747.6	34.7	0.954	1.128	1.155	23.79	1648	16	
4/12/2012	272111	0.0273		10	749.3	34.3	0.954	1.123	1.165	23.80	1664	16	
4/15/2012	272102	0.0677		20	738.9	35.6	0.952	1.138	1.124	23.78	1604	42	
4/18/2012	272292	0.0182		15	747.7	34.9	0.953	1.131	1.150	23.78	1641	11	
4/21/2012	272275	0.0160		10	744.3	34.3	0.954	1.123	1.157	23.81	1652	10	
4/24/2012	272273	0.0235		15	739.7	35.0	0.953	1.131	1.137	23.79	1622	14	
4/27/2012	272263	0.0370		12	744.8	34.6	0.954	1.126	1.153	23.83	1649	22	
4/30/2012	272254	0.0231		20	743.6	35.5	0.952	1.138	1.132	23.81	1617	14	
Valid Samples:	10												
Scheduled Samples:	10												
Percent Data Captured:	100%												
Monthly Average:	18												
Standard Deviation:	9												
Maximum:	42												
Minimum:	10												
NOTES													
DEFINITIONS and CALCULATIONS													
T _{av} = average temperature in degrees Celcius													
P _{av} = average station pressure in millimeters of mercury													
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868													
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868													
P _f /P _{av} = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}													
Q _a = look up table volumetric flow rate													
Q _{std} = sample volumetric flow rate corrected to standard conditions													
V _{std} = sample volume corrected to standard conditions													



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2951								National Site #3 - Water Plant											
Sample Date 2012	Filter ID	PM10 Filter Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³								
4/3/2012	272137	0.0285	20	740.5	35.6	0.952	1.145	1.134	23.44	1595	18								
4/6/2012	272128	0.0181	9	748.1	34.2	0.954	1.128	1.173	23.45	1651	11								
4/9/2012	272119	0.0260	13	747.6	34.7	0.954	1.134	1.161	23.48	1636	16								
4/12/2012	272109	0.0288	10	749.3	34.3	0.954	1.130	1.173	23.45	1650	17								
4/15/2012	272300	0.0547	20	738.9	35.6	0.952	1.145	1.131	23.45	1591	34								
4/18/2012	272290	0.0157	15	747.7	34.9	0.953	1.138	1.157	23.41	1625	10								
4/21/2012	272279	0.0136	10	744.3	34.3	0.954	1.130	1.164	23.49	1640	8								
4/24/2012	272271	0.0220	15	739.7	35.0	0.953	1.138	1.143	23.49	1611	14								
4/27/2012	272261	0.0481	12	744.8	34.6	0.954	1.132	1.159	23.38	1627	30								
4/30/2012	272252	0.0220	20	743.6	35.5	0.952	1.145	1.139	23.48	1605	14								
Valid Samples: 10	Scheduled Samples: 10	Percent Data Captured: 100%									Monthly Average: 17								
											Standard Deviation: 9								
											Maximum: 34								
											Minimum: 8								
NOTES																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celcius	P _f /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																		
P _{av} = average station pressure in millimeters of mercury	Q _a = look up table volumetric flow rate																		
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868	Q _{std} = sample volumetric flow rate corrected to standard conditions																		
P _a = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868	V _{std} = sample volume corrected to standard conditions																		



PM₁₀ Analysis

The Doe Run Company

Big River Site #4 - QA																					
Sampler ID P1019																					
Sample Date	Filter ID	PM10 Filter Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _o /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³										
4/3/2012	272134	0.0319	20	740.5	35.6	0.952	1.157	1.146	23.86	1640	19										
4/9/2012	272116	0.0275	13	747.6	34.7	0.954	1.146	1.174	23.88	1682	16										
4/15/2012	272297	0.0513	20	738.9	35.6	0.952	1.157	1.143	23.84	1634	31										
4/21/2012	272287	0.0226	10	744.3	34.3	0.954	1.141	1.176	23.86	1683	13										
4/27/2012	272268	0.0387	12	744.8	34.6	0.954	1.145	1.172	23.84	1677	23										
Valid Samples:	5																				
Scheduled Samples:	5																				
Percent Data Captured:	100%																				
NOTES																					
DEFINITIONS and CALCULATIONS																					
T_{av} = average temperature in degrees Celcius																					
P_{av} = average station pressure in millimeters of mercury																					
$P_f = ((Temp \text{ in } ^\circ\text{Kelvin} * \text{Temp Slope}) + \text{Temp Int.}) * 1.868$																					
$P_f = ((Temp \text{ in } ^\circ\text{Kelvin} * 0.0664) + (-0.4213)) * 1.868$																					
$P_o/P_a = \text{pressure ratio of } P_f \text{ and } P_{av} = 1 - P_f/P_{av}$																					
$Q_a = \text{look up table volumetric flow rate}$																					
$Q_{std} = \text{sample volumetric flow rate corrected to standard conditions}$																					
$V_{std} = \text{sample volume corrected to standard conditions}$																					
Monthly Average: 21																					
Standard Deviation: 7																					
Maximum: 31																					
Minimum: 13																					

Lab Results (Lead and Cadmium)



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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0356
Date Received: 04/19/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121943	8552223	04/02/12	#3 East - WTP	28	< 10	05/09/12 - DS
121946	8552214	04/03/12	#3 East - WTP	11	< 10	05/09/12 - DS
121949	8552204	04/04/12	#3 East - WTP	17	< 10	05/09/12 - DS
121952	8552995	04/05/12	#3 East - WTP	11	< 10	05/09/12 - DS
121955	8552986	04/06/12	#3 East - WTP	< 10	< 10	05/08/12 - DS
121971	8552227	04/02/12	#1 Ozark	18	< 10	05/08/12 - DS
121972	8552228	04/02/12	#2 Soccer	56	< 10	05/08/12 - DS
121973	8552217	04/03/12	#1 Ozark	20	< 10	05/08/12 - DS
121974	8552218	04/03/12	#2 Soccer	13	< 10	05/08/12 - DS
121975	8552201	04/04/12	#1 Ozark	11	< 10	05/08/12 - DS
121976	8552202	04/04/12	#2 Soccer	15	< 10	05/08/12 - DS
121977	8552999	04/05/12	#1 Ozark	< 10	< 10	05/08/12 - DS
121978	8553000	04/05/12	#2 Soccer	12	< 10	05/08/12 - DS
121979	8552989	04/06/12	#1 Ozark	19	< 10	05/08/12 - DS
121980	8552990	04/06/12	#2 Soccer	17	< 10	05/08/12 - DS

Submitted by:

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Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0399
Date Received: 05/02/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122096	8552975	04/09/12	#3 East - WTP	20	< 10	05/10/12 - DS
122099	8552966	04/10/12	#3 East - WTP	69	< 10	05/10/12 - DS
122102	8552957	04/11/12	#3 East - WTP	29	< 10	05/10/12 - DS
122105	8552947	04/12/12	#3 East - WTP	23	< 10	05/10/12 - DS
122108	8552938	04/13/12	#3 East - WTP	< 10	< 10	05/10/12 - DS
122124	8552972	04/09/12	#1 Ozark	20	< 10	05/10/12 - DS
122125	8552973	04/09/12	#2 Soccer	42	< 10	05/10/12 - DS
122126	8552963	04/10/12	#1 Ozark	13	< 10	05/10/12 - DS
122127	8552964	04/10/12	#2 Soccer	103	< 10	05/11/12 - DS
122128	8552954	04/11/12	#1 Ozark	24	< 10	05/11/12 - DS
122129	8552955	04/11/12	#2 Soccer	32	< 10	05/11/12 - DS
122130	8552944	04/12/12	#1 Ozark	< 10	< 10	05/11/12 - DS
122131	8552945	04/12/12	#2 Soccer	17	< 10	05/11/12 - DS
122132	8552935	04/13/12	#1 Ozark	< 10	< 10	05/11/12 - DS
122133	8552936	04/13/12	#2 Soccer	12	< 10	05/11/12 - DS

Submitted by: _____

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0400
Date Received: 05/02/12
Analysis Method: 40 CFR §50
Appendix G

Location**National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122143	8552928	04/16/12	#3 East - WTP	84	< 10	05/15/12 - DS
122146	8552920	04/17/12	#3 East - WTP	10	< 10	05/15/12 - DS
122149	8552910	04/18/12	#3 East - WTP	14	< 10	05/15/12 - DS
122152	8552901	04/19/12	#3 East - WTP	15	< 10	05/15/12 - DS
122155	8593291	04/20/12	#3 East - WTP	< 10	< 10	05/15/12 - DS
122171	8552925	04/16/12	#1 Ozark	11	< 10	05/15/12 - DS
122172	8552926	04/16/12	#2 Soccer	26	< 10	05/15/12 - DS
122173	8552923	04/17/12	#1 Ozark	13	< 10	05/15/12 - DS
122174	8552924	04/17/12	#2 Soccer	15	< 10	05/16/12 - DS
122175	8552907	04/18/12	#1 Ozark	14	< 10	05/16/12 - DS
122176	8552908	04/18/12	#2 Soccer	21	< 10	05/16/12 - DS
122177	8552905	04/19/12	#1 Ozark	17	< 10	05/16/12 - DS
122178	8552906	04/19/12	#2 Soccer	23	< 10	05/16/12 - DS
122179	8593288	04/20/12	#1 Ozark	< 10	< 10	05/16/12 - DS
122180	8593289	04/20/12	#2 Soccer	< 10	< 10	05/16/12 - DS

Submitted by:

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0430
Date Received: 05/09/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122314	8593281	04/23/12	#3 East - WTP	32	< 10	05/18/12 - DS
122317	8593272	04/24/12	#3 East - WTP	80	< 10	05/18/12 - DS
122320	8593263	04/25/12	#3 East - WTP	16	< 10	05/18/12 - DS
122323	8593253	04/26/12	#3 East - WTP	70	< 10	05/18/12 - DS
122326	8593244	04/27/12	#3 East - WTP	29	< 10	05/18/12 - DS
122329	8593235	04/30/12	#3 East - WTP	18	< 10	05/18/12 - DS
122348	8593278	04/23/12	#1 Ozark	46	< 10	05/18/12 - DS
122349	8593279	04/23/12	#2 Soccer	75	< 10	05/18/12 - DS
122350	8593269	04/24/12	#1 Ozark	67	< 10	05/18/12 - DS
122351	8593270	04/24/12	#2 Soccer	15	< 10	05/18/12 - DS
122352	8593260	04/25/12	#1 Ozark	23	< 10	05/18/12 - DS
122353	8593261	04/25/12	#2 Soccer	37	< 10	05/18/12 - DS
122354	8593250	04/26/12	#1 Ozark	10	< 10	05/18/12 - DS
122355	8593251	04/26/12	#2 Soccer	38	< 10	05/18/12 - DS
122356	8593241	04/27/12	#1 Ozark	< 10	< 10	05/18/12 - DS
122357	8593242	04/27/12	#2 Soccer	18	< 10	05/18/12 - DS
122358	8593231	04/30/12	#1 Ozark	< 10	< 10	05/18/12 - DS
122359	8593232	04/30/12	#1 Ozark	< 10	< 10	05/18/12 - DS
122360	8593233	04/30/12	#2 Soccer	15	< 10	05/18/12 - DS

Submitted by: _____

Digital signature of Jennifer Vandelicht
Jennifer Vandelicht,
Inovatia Laboratories, LLC,
Inovatia Quality Assurance,
email:jvandelicht@inovatia.
com, cscUS
Date: 2012.05.21 15:26:13
-05'00'

5/21/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0356**Date Received:** 04/19/12**Analysis Method:** 40 CFR §50
Appendix G**Location****Big River**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121934	8552225	04/02/12	#4 Primary	70	< 10	05/09/12 - DS
121935	8552216	04/03/12	#4 Primary	11	< 10	05/09/12 - DS
121936	8552226	04/03/12	#4 QA	11	< 10	05/09/12 - DS
121937	8552206	04/04/12	#4 Primary	21	< 10	05/09/12 - DS
121938	8552997	04/05/12	#4 Primary	17	< 10	05/09/12 - DS
121939	8552998	04/05/12	#4 QA	16	< 10	05/09/12 - DS
121940	8552988	04/06/12	#4 Primary	11	< 10	05/09/12 - DS

Submitted by:

Jennifer Vandelicht
Digitally signed by Jennifer
Vandelicht
DN: cn=Jennifer Vandelicht,
o=Inovatia Laboratories, LLC,
ou=Quality Assurance,
email=jvandelicht@inovatia.com,
cn=US
Date: 2012.05.10 10:25:08 -05'00'

5/10/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0399
Date Received: 05/02/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122087	8552977	04/09/12	#4 Primary	58	< 10	05/10/12 - DS
122088	8552968	04/10/12	#4 Primary	68	< 10	05/10/12 - DS
122089	8552978	04/10/12	#4 QA	63	< 10	05/10/12 - DS
122090	8552959	04/11/12	#4 Primary	52	< 10	05/10/12 - DS
122091	8552949	04/12/12	#4 Primary	14	< 10	05/10/12 - DS
122092	8552950	04/12/12	#4 QA	14	< 10	05/10/12 - DS
122093	8552940	04/13/12	#4 Primary	< 10	< 10	05/10/12 - DS

Submitted by:

Digitally signed by Jennifer
Vandelicht
Dina Jennifer Vandelicht,
Inovatia Laboratories, LLC,
Geo-Quality Assurance,
email:jvandelicht@inovatia.com,
cvUS
Date: 2012.05.15 15:42:33 -05'00'

5/15/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0400
Date Received: 05/02/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122134	8552930	04/16/12	#4 Primary	13	< 10	05/15/12 - DS
122135	8552922	04/17/12	#4 Primary	18	< 10	05/15/12 - DS
122136	8552931	04/17/12	#4 QA	17	< 10	05/15/12 - DS
122137	8552912	04/18/12	#4 Primary	15	< 10	05/15/12 - DS
122138	8552903	04/19/12	#4 Primary	34	< 10	05/15/12 - DS
122139	8552904	04/19/12	#4 QA	37	< 10	05/15/12 - DS
122140	8593293	04/20/12	#4 Primary	< 10	< 10	05/15/12 - DS

Submitted by:


Digitally signed by Jennifer
Vandelicht
DSC certificate for Jennifer
Vandelicht,
Inovatia Laboratories, LLC,
as Quality Assurance
email:jvandelicht@inovatia.com,
c=US
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5/16/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0430
Date Received: 05/09/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
122304	8593283	04/23/12	#4 Primary	43	< 10	05/18/12 - DS
122305	8593274	04/24/12	#4 Primary	30	< 10	05/18/12 - DS
122306	8593284	04/24/12	#4 QA	34	< 10	05/18/12 - DS
122307	8593265	04/25/12	#4 Primary	28	< 10	05/18/12 - DS
122308	8593255	04/26/12	#4 Primary	34	< 10	05/18/12 - DS
122309	8593256	04/26/12	#4 QA	34	< 10	05/18/12 - DS
122310	8593246	04/27/12	#4 Primary	21	< 10	05/18/12 - DS
122311	8593237	04/30/12	#4 Primary	21	< 10	05/18/12 - DS

Submitted by:

5/21/12

Date

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Meteorological Data

Meteorological Report
The Doe Run Company
Wind Speed

Site Name: Rivermines

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

2012	Hour	24 Hour Avg																								
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1-Apr	0.6	3.9	0.8	0.2	0.4	0.5	0.9	0.9	2.5	5.2	7.3	9.2	8.7	9.1	6.5	7.6	6.7	5.1	5.2	6.1	8.7	6.7	5.9	5.8	9.2	4.8
2-Apr	5.5	3.6	1.6	2.3	0.1	0.0	0.3	0.4	2.1	1.9	2.4	4.3	5.2	6.1	5.7	6.2	6.0	5.3	4.1	5.7	6.2	5.3	3.0	1.4	6.2	3.5
3-Apr	0.1	0.3	0.5	0.8	2.5	0.3	0.2	0.5	2.9	5.0	5.0	5.2	6.2	7.6	7.3	5.6	4.9	2.5	3.7	0.9	1.3	0.5	1.3	1.9	7.6	2.8
4-Apr	1.2	0.0	0.1	0.8	0.7	0.3	0.9	1.9	1.4	2.2	2.8	3.7	4.9	3.8	3.5	4.1	3.0	4.5	6.8	4.2	2.6	2.6	0.0	0.1	6.8	2.3
5-Apr	0.0	0.6	0.1	2.1	5.8	4.5	2.8	1.3	4.9	5.5	4.8	4.0	5.3	6.3	7.5	6.8	5.2	4.1	1.7	0.1	0.0	0.0	0.2	0.2	7.5	3.1
6-Apr	0.7	0.4	1.4	1.3	1.8	0.7	1.0	3.7	4.8	5.7	5.5	5.1	5.2	4.7	4.7	4.6	4.2	3.4	1.6	0.2	0.1	0.0	0.2	0.1	5.7	2.5
7-Apr	0.1	0.1	0.1	0.0	0.2	0.0	0.2	3.2	4.2	3.9	2.3	2.8	2.3	1.8	1.7	2.1	3.0	1.1	0.2	0.3	0.2	0.2	3.5	7.0	7.0	1.7
8-Apr	4.0	4.0	6.0	6.9	4.8	3.1	0.3	3.4	4.4	6.4	4.2	4.8	4.0	3.3	2.6	2.0	1.5	0.7	0.1	0.1	0.2	0.4	0.1	1.5	6.9	2.9
9-Apr	2.8	3.1	2.7	3.2	1.9	0.8	1.0	4.3	7.1	5.9	6.4	6.9	6.0	6.0	5.6	4.6	7.2	4.7	1.5	0.1	0.4	0.1	0.1	0.1	7.2	3.4
10-Apr	0.1	0.1	0.3	0.0	0.1	0.2	3.7	7.1	6.5	6.3	8.6	7.2	7.0	7.8	8.3	7.4	7.4	6.5	4.8	0.7	0.1	0.1	0.3	1.0	8.6	3.8
11-Apr	1.7	0.3	0.4	0.4	0.2	0.1	0.6	4.1	4.3	4.8	4.1	3.3	4.5	5.7	5.6	5.5	4.5	3.9	1.0	0.3	0.0	0.1	0.1	0.3	5.7	2.3
12-Apr	0.0	0.1	0.1	0.4	0.5	0.7	0.1	0.3	3.9	7.1	6.1	5.2	5.1	4.3	4.8	2.5	4.1	2.6	3.0	3.2	2.7	1.0	0.7	1.5	7.1	2.5
13-Apr	1.9	3.6	4.8	3.2	5.0	4.5	5.1	7.4	5.1	3.4	3.1	2.7	4.5	4.7	5.6	6.4	4.5	3.3	4.4	4.9	6.7	6.0	4.6	4.1	7.4	4.6
14-Apr	2.3	1.3	1.9	1.3	0.5	4.6	5.8	2.8	2.2	2.6	2.1	6.3	10.9	11.0	7.4	8.6	8.3	9.2	8.1	7.6	4.7	5.1	6.1	6.0	11.0	5.3
15-Apr	6.9	9.0	9.8	11.5	10.3	9.9	9.2	11.1	11.8	13.8	13.5	11.4	11.4	13.0	11.3	10.2	8.6	9.4	12.4	8.3	4.9	8.7	8.3	4.6	13.8	10.0
16-Apr	4.0	8.0	8.9	10.2	9.8	8.5	6.3	6.9	5.7	7.1	5.5	6.0	5.4	5.6	4.5	4.9	4.4	4.2	1.4	0.1	0.1	0.3	0.1	0.3	10.2	4.9
17-Apr	1.4	0.5	1.5	2.2	2.4	2.4	1.6	0.3	2.1	2.3	3.9	4.5	4.3	4.7	3.9	4.0	3.7	3.5	2.6	2.7	3.1	1.5	0.3	0.1	4.7	2.5
18-Apr	0.2	0.1	0.1	0.1	0.0	0.7	0.8	0.6	3.5	5.5	5.5	5.0	5.4	4.4	4.6	3.6	4.3	4.4	4.8	5.5	5.4	5.3	4.7	4.6	5.5	3.3
19-Apr	3.4	0.9	0.1	0.1	0.0	0.2	0.6	2.3	4.0	7.4	7.1	7.3	7.7	7.7	8.6	9.3	8.7	8.6	6.0	4.1	3.3	5.0	3.1	0.6	9.3	4.4
20-Apr	1.8	4.5	6.1	6.4	4.1	3.2	0.5	1.9	6.0	7.7	7.2	6.8	7.0	7.6	8.1	7.3	6.2	6.4	7.1	7.3	6.2	4.7	4.6	5.2	8.1	5.6
21-Apr	6.4	6.2	5.4	5.0	4.1	3.1	3.7	7.7	7.6	8.5	7.1	6.5	5.5	5.2	5.5	4.5	6.1	4.3	2.0	0.2	0.1	0.5	1.1	0.2	8.5	4.4
22-Apr	0.3	1.5	3.3	2.2	2.3	1.9	0.3	4.0	3.0	2.5	6.7	8.9	10.1	9.4	9.8	9.6	9.6	8.2	6.3	5.5	5.5	6.0	4.3	0.5	10.1	5.1
23-Apr	0.0	0.1	0.2	1.1	1.1	0.7	1.6	6.4	8.5	9.1	9.4	9.3	8.7	9.2	9.7	8.1	7.7	5.9	4.1	1.3	0.3	1.7	0.7	0.7	9.7	4.4
24-Apr	1.1	0.2	1.3	0.6	0.1	1.5	2.2	2.1	3.4	4.5	5.5	6.5	8.5	8.4	7.2	6.7	7.7	6.4	3.8	0.5	0.7	1.4	2.4	1.2	8.5	3.5
25-Apr	0.7	0.7	0.9	0.0	0.0	0.2	0.7	1.0	2.4	4.3	4.0	7.5	9.0	9.3	9.2	8.4	5.9	4.1	3.1	0.8	1.1	0.8	1.0	2.7	9.3	3.2
26-Apr	2.6	4.1	2.1	2.0	1.8	1.4	1.8	3.8	4.8	7.2	7.1	6.7	7.8	7.2	8.1	7.3	6.4	5.3	3.9	1.6	0.5	0.4	3.3	2.7	8.1	4.2
27-Apr	2.2	3.7	5.2	4.7	3.8	3.8	4.4	5.8	6.4	5.8	5.6	7.3	6.5	4.1	5.5	7.5	5.9	6.1	2.5	2.8	3.2	2.3	3.8	2.0	7.5	4.6
28-Apr	3.5	1.9	3.6	0.9	0.3	0.4	3.6	6.0	6.8	6.9	6.7	5.5	4.3	5.9	7.2	7.4	6.3	3.8	1.6	3.1	3.8	1.8	2.1	1.8	7.4	4.0
29-Apr	0.6	0.3	1.5	2.3	1.9	2.2	2.4	2.9	4.1	3.6	3.3	3.5	3.0	3.8	3.7	4.3	3.2	2.4	1.5	0.5	0.4	0.6	0.0	0.6	4.3	2.2
30-Apr	1.2	3.7	5.9	6.2	4.5	2.0	2.0	3.1	4.1	3.4	2.6	3.5	2.5	2.9	3.8	3.7	2.9	1.9	0.6	0.4	0.2	0.2	0.5	6.2	2.6	

		Maximum Hour//Monthly Average	13.8
		Total Hours In Month	720
		Valid Hours//Percent Data Captured	100.0%
BARR			

Meteorological Report
The Doe Run Company
Wind Direction

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

2012	Hour																								24 Hour Avg	
	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	216	187	219	194	265	267	257	267	244	235	231	225	228	227	232	219	224	209	194	184	191	193	199	203	221	
2-Apr	206	207	197	198	174	187	7	102	137	220	106	99	82	91	114	103	110	145	155	171	183	188	202	216	150	
3-Apr	180	157	159	236	210	10	211	238	202	202	208	217	175	191	202	201	198	355	320	81	67	219	225	194	194	
4-Apr	198	176	17	181	187	335	349	10	50	29	55	0	354	19	66	24	41	13	332	344	314	304	219	196	159	
5-Apr	209	237	210	4	27	8	3	41	14	344	353	16	8	10	359	1	357	340	352	350	281	158	156	5	160	
6-Apr	17	11	15	18	33	355	339	23	54	39	35	42	46	48	31	48	59	54	64	140	177	182	177	169	91	
7-Apr	188	197	183	187	339	219	360	163	163	149	196	116	72	205	236	239	216	197	184	210	233	218	300	320	212	
8-Apr	319	315	323	322	339	335	320	357	26	35	32	16	40	85	27	121	125	141	123	171	226	194	206	219	184	
9-Apr	232	236	240	239	240	231	244	290	329	359	354	353	326	326	315	285	315	316	318	219	186	166	178	203	271	
10-Apr	192	181	286	201	238	270	358	358	354	338	346	341	325	333	330	321	336	345	337	324	196	188	200	231	289	
11-Apr	236	209	249	310	335	291	315	354	16	33	7	336	3	8	360	15	30	39	52	73	100	161	186	202	163	
12-Apr	164	349	179	231	221	212	224	3	161	191	174	129	153	154	178	146	195	176	164	164	161	165	158	133	174	
13-Apr	155	148	154	164	154	151	148	151	152	158	136	85	25	44	119	145	144	147	160	154	157	164	167	158	139	
14-Apr	142	350	47	95	116	172	185	335	336	145	192	194	203	209	203	200	195	192	193	191	183	181	180	192		
15-Apr	188	189	192	193	199	192	202	192	194	190	192	186	180	184	178	177	178	170	199	239	238	219	198	216	195	
16-Apr	208	209	217	217	216	231	247	254	267	281	279	287	290	295	293	306	305	319	321	174	165	188	222	204	250	
17-Apr	193	187	227	219	220	209	231	238	11	30	41	55	71	105	88	82	86	96	119	149	154	162	241	172	141	
18-Apr	157	169	173	159	339	224	187	105	149	179	165	157	161	222	209	216	203	186	172	179	181	187	192	187	186	
19-Apr	169	170	144	239	358	13	355	32	170	202	190	170	169	174	166	170	175	188	184	190	186	173	174	193	181	
20-Apr	221	213	209	219	232	239	256	271	316	327	331	322	328	331	334	334	340	338	332	336	344	323	328	342	299	
21-Apr	356	358	356	354	354	358	4	4	1	5	7	17	5	357	345	2	356	339	352	12	188	189	198	187	203	190
22-Apr	191	12	161	223	48	52	202	188	284	338	353	354	346	326	334	343	343	341	347	333	319	324	337	324	268	
23-Apr	187	186	227	237	227	230	265	332	337	338	336	329	331	325	318	315	309	327	320	305	227	234	244	247	280	
24-Apr	253	257	244	252	243	225	238	256	252	243	237	236	222	223	228	217	210	206	204	190	177	201	219	227		
25-Apr	228	223	251	175	210	20	188	348	176	182	210	184	186	188	200	193	184	173	175	17	185	230	216	225	190	
26-Apr	248	242	253	231	206	254	266	319	337	348	336	342	346	342	342	344	348	352	355	6	44	173	49	53	256	
27-Apr	53	61	64	78	73	63	64	92	83	75	79	78	72	46	83	115	108	109	88	89	88	57	121	117	82	
28-Apr	174	173	134	110	2	164	177	193	199	203	198	199	201	174	174	174	182	177	161	16	28	37	44	57	140	
29-Apr	19	75	26	55	48	80	90	67	22	52	84	85	50	33	61	27	27	23	23	42	151	316	176	176	75	
30-Apr	67	164	174	201	211	231	235	213	212	236	230	198	259	279	257	291	263	269	199	175	147	59	180	167	205	

BARR	Total Hours in Month	720
	Valid Hours	720
	Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company

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Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

2012	Hour																									24 Hour Avg
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1-Apr	14.7	17.6	10.4	5.5	8.6	5.1	8.0	18.5	30.0	25.4	28.0	23.8	26.6	22.5	25.9	24.3	22.4	15.4	11.0	14.1	15.6	15.2	14.7	15.0	17	
2-Apr	15.3	13.5	10.3	15.7	2.1	3.8	2.1	9.4	30.1	40.8	45.7	33.3	28.8	27.8	33.8	27.2	23.3	23.0	18.1	18.0	14.6	14.8	13.7	13.7	20	
3-Apr	2.3	7.1	9.0	8.0	15.7	9.9	2.4	27.7	23.1	23.7	22.2	33.1	25.8	23.7	24.9	19.4	21.1	26.9	27.5	20.1	24.3	43.6	12.3	14.7	20	
4-Apr	12.3	1.0	1.8	8.4	8.2	34.7	15.0	28.3	26.3	23.1	30.0	19.1	18.3	28.4	32.2	21.5	27.4	18.5	26.1	24.4	46.1	27.9	6.5	6.7	20	
5-Apr	4.7	10.1	9.9	20.2	20.4	19.4	16.6	16.6	18.7	20.2	19.0	18.5	17.7	19.1	18.2	17.4	17.3	16.1	11.4	8.1	5.4	1.1	12.5	12.1	15	
6-Apr	19.0	9.8	21.7	15.0	19.7	18.8	13.1	22.9	31.8	29.7	30.8	31.2	34.8	33.5	31.2	31.9	33.9	28.0	18.2	5.5	3.1	0.6	6.5	6.6	21	
7-Apr	0.9	3.3	7.1	2.1	2.5	12.1	10.8	23.3	28.1	33.1	39.7	55.0	61.7	52.4	33.5	32.0	22.7	9.8	2.6	11.2	6.1	9.4	18.6	19.0	21	
8-Apr	19.8	20.5	15.3	14.2	14.0	13.3	11.6	19.7	29.5	29.1	43.2	33.3	48.6	62.8	38.3	46.0	33.9	26.6	5.1	1.1	6.5	13.7	3.4	18.4	24	
9-Apr	17.2	13.5	12.1	11.9	15.1	16.2	11.6	20.8	19.1	22.3	24.5	31.1	36.5	31.9	36.6	36.4	21.6	18.2	10.0	4.7	9.1	1.9	1.6	0.6	18	
10-Apr	3.1	4.1	17.0	1.0	11.9	11.2	14.9	18.9	21.8	25.1	22.5	28.6	28.1	27.3	25.9	24.3	19.7	18.6	15.3	5.5	3.8	5.3	4.4	12.1	15	
11-Apr	16.0	7.1	20.9	19.7	12.6	16.6	15.9	21.2	24.7	31.4	40.8	52.9	37.9	31.1	36.3	30.5	29.0	25.1	17.5	8.4	3.7	5.7	3.9	6.5	21	
12-Apr	0.7	3.3	2.7	7.5	11.3	9.6	8.6	14.6	28.6	27.0	33.8	37.2	41.2	42.0	34.8	54.1	29.8	16.6	16.6	17.8	16.4	13.5	14.2	21.5	21	
13-Apr	17.8	21.2	22.1	23.6	21.4	23.8	24.0	24.1	23.6	21.5	27.9	26.9	27.1	30.5	28.1	23.0	30.5	26.9	23.6	23.5	21.5	22.2	22.2	24.0	24	
14-Apr	29.6	17.5	21.8	19.9	18.7	23.8	27.3	27.6	26.3	28.5	20.7	18.2	20.0	20.5	21.4	21.6	18.8	18.1	17.5	17.4	17.5	19.4	19.6	20.3	21	
15-Apr	18.3	17.7	18.7	19.0	20.0	20.2	20.1	21.4	19.2	21.0	20.9	21.6	23.1	21.1	21.8	23.3	22.7	22.8	22.7	24.0	24.3	21.2	20.1	32.2	22	
16-Apr	30.0	19.4	20.3	20.2	19.3	22.8	27.1	26.9	34.0	35.8	35.8	35.3	37.4	37.4	36.1	37.1	29.8	21.9	10.3	1.5	2.4	6.9	9.0	7.2	23	
17-Apr	7.8	10.2	17.0	19.7	18.6	16.3	19.7	24.4	24.0	38.9	47.4	33.6	40.8	37.4	47.9	41.1	37.5	26.9	21.2	17.7	16.3	22.0	23.5	5.3	26	
18-Apr	3.8	2.8	4.4	5.7	1.3	15.1	19.6	17.7	29.1	28.0	32.7	42.1	35.9	35.6	39.3	33.9	27.5	21.1	19.4	17.5	18.4	16.7	14.4	15.5	21	
19-Apr	16.4	8.0	14.2	24.5	0.2	4.9	5.7	23.3	27.8	24.8	27.9	27.3	30.0	29.7	27.1	25.3	24.3	19.2	19.1	14.2	15.3	17.3	43.9	10.4	20	
20-Apr	25.3	21.7	20.2	20.8	24.1	17.7	8.3	20.7	25.0	19.1	20.2	21.9	20.8	20.9	19.2	20.3	21.1	18.7	18.8	18.8	17.9	17.7	18.0	17.5	20	
21-Apr	17.4	17.1	18.2	19.1	17.3	17.9	17.2	18.5	21.4	21.1	27.4	28.7	39.2	47.9	33.1	36.1	22.9	18.5	17.7	5.7	2.4	26.0	13.0	8.8	21	
22-Apr	11.6	52.3	37.2	17.4	28.4	55.5	11.8	21.3	32.6	37.0	17.8	19.0	21.3	22.4	20.0	21.3	19.6	18.8	17.4	16.3	15.5	15.4	16.2	26.3	24	
23-Apr	1.3	0.7	4.7	15.3	17.2	19.7	24.7	19.9	20.0	22.4	24.3	24.5	28.3	27.9	26.7	27.1	30.4	22.4	17.0	14.2	4.9	13.9	8.6	5.5	18	
24-Apr	7.9	3.3	6.5	5.0	1.5	9.2	18.7	22.6	32.4	26.9	27.5	35.0	24.7	26.4	25.5	23.5	22.0	18.8	15.9	12.5	5.3	9.1	11.1	11.1	17	
25-Apr	12.6	7.9	10.3	2.1	0.6	2.1	8.2	13.3	23.6	45.2	48.9	19.4	22.9	23.1	22.8	23.9	25.9	26.6	23.6	19.8	31.3	13.5	10.7	13.0	19	
26-Apr	15.7	21.5	24.1	32.3	24.2	16.9	36.4	33.3	24.0	21.8	26.8	25.8	26.3	25.4	21.6	21.6	20.0	17.2	17.7	17.6	14.2	4.7	34.0	31.7	23	
27-Apr	28.6	33.0	32.4	29.7	28.3	29.6	29.7	26.1	28.4	32.7	32.7	27.9	29.5	44.9	30.7	26.7	26.8	24.2	47.8	25.6	24.0	25.4	24.1	27.4	30	
28-Apr	29.8	39.1	18.9	13.1	7.2	18.3	23.9	22.4	22.6	22.4	22.7	23.5	32.2	26.8	26.8	25.7	21.3	24.9	17.5	33.6	20.8	26.2	23.5	27.2	24	
29-Apr	8.8	6.9	19.1	27.2	24.1	23.9	25.9	30.0	24.4	32.8	32.9	33.2	34.2	32.2	28.6	26.9	26.4	25.3	42.0	6.4	11.9	26.1	1.5	10.5	23	
30-Apr	25.6	18.7	19.2	19.3	18.9	16.5	39.5	25.0	21.7	26.7	35.5	27.4	37.0	43.5	36.7	37.3	41.6	32.1	14.3	3.2	7.9	0.0	6.9	28.4	24	

BARR	Total Hours In Month	720
	Valid Hours	720
	Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Temperature

Site Name: Rivermines

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

2012	Hour	24 Hour																										
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
1-Apr	15	18	17	15	14	13	15	20	25	28	29	30	31	32	33	33	33	33	31	28	27	26	25	24	24	32.8	24.3	
2-Apr	23	22	20	19	17	15	15	20	24	26	28	28	29	30	31	31	31	31	30	28	26	24	24	22	21	31.4	24.4	
3-Apr	17	16	15	14	16	15	15	17	22	23	24	25	26	26	26	26	25	21	19	19	19	19	18	18	18	26.3	20.0	
4-Apr	17	16	15	15	15	14	14	16	16	17	18	18	18	19	19	19	19	19	19	17	16	16	15	14	14	19.4	16.5	
5-Apr	13	13	14	14	12	11	11	12	12	11	11	12	13	13	13	13	13	13	13	12	10	9	8	7	6	14.1	11.5	
6-Apr	6	4	5	4	4	3	4	6	8	10	11	13	15	16	16	16	15	15	13	9	7	5	4	3	3	15.7	8.8	
7-Apr	3	2	2	1	1	0	3	10	13	15	18	19	20	21	21	21	20	19	16	13	12	11	12	14	21.4	12.0		
8-Apr	13	13	11	10	9	8	9	11	13	15	16	17	18	18	19	19	19	19	19	15	10	8	7	7	6	19.4	13.0	
9-Apr	6	5	4	4	4	3	6	12	16	17	19	20	22	22	23	23	22	20	17	14	12	10	9	7	7	23.1	13.2	
10-Apr	7	8	8	8	6	6	9	10	11	12	13	14	16	17	17	17	17	17	16	14	10	7	5	4	4	17.4	10.6	
11-Apr	4	3	2	2	1	1	4	6	8	9	10	12	13	13	14	14	14	13	13	11	8	5	3	2	1	1	13.9	7.2
12-Apr	1	0	0	-1	-1	-1	1	5	11	13	14	15	16	17	18	18	18	17	15	14	13	12	12	12	12	18.3	9.9	
13-Apr	12	12	12	12	12	12	12	13	12	11	11	10	10	10	10	11	12	12	13	13	14	14	14	14	14	14.4	11.9	
14-Apr	14	13	12	11	11	15	16	15	14	16	19	22	24	25	26	26	26	25	24	23	22	22	22	22	22	26.3	19.4	
15-Apr	21	21	20	20	20	20	20	21	22	23	23	24	24	24	24	24	23	23	23	23	23	23	23	23	23	24.2	20.2	
16-Apr	12	12	13	13	13	12	12	12	13	14	17	18	19	20	21	21	20	19	16	12	10	9	8	7	7	20.7	14.2	
17-Apr	7	6	6	6	5	5	7	11	14	17	18	19	19	19	19	20	20	20	19	17	15	13	11	9	8	19.6	12.9	
18-Apr	7	6	6	5	4	4	7	12	16	18	20	21	22	23	24	24	24	24	22	20	18	16	15	15	14	24.0	15.1	
19-Apr	14	11	9	8	8	8	10	14	19	22	23	24	24	25	25	25	24	23	21	19	17	17	17	17	15	24.9	17.5	
20-Apr	16	17	18	18	17	16	16	14	13	11	10	10	10	10	10	9	9	9	9	8	8	8	8	8	8	17.9	11.8	
21-Apr	8	8	7	7	7	7	7	8	9	11	12	13	14	15	16	16	16	15	13	9	8	6	5	5	5	16.1	10.1	
22-Apr	5	5	6	5	5	5	7	10	12	13	11	11	12	12	12	13	13	12	11	10	9	8	7	4	4	12.9	9.1	
23-Apr	3	2	2	1	1	1	5	9	11	13	14	15	16	16	17	16	16	15	13	10	8	7	6	6	6	16.7	9.4	
24-Apr	5	4	4	3	3	3	8	14	18	19	22	23	24	25	26	24	24	24	21	18	15	15	15	13	13	25.6	15.5	
25-Apr	13	13	12	12	13	13	14	18	20	19	18	22	25	27	28	27	27	26	25	22	20	18	18	18	18	27.6	19.4	
26-Apr	19	21	20	19	18	18	21	22	23	24	25	27	27	28	27	27	26	24	22	20	18	15	17	16	16	27.7	21.8	
27-Apr	15	14	13	12	11	10	10	10	11	11	12	13	13	11	10	11	12	13	13	13	13	13	13	12	12	14.8	12.1	
28-Apr	13	13	13	12	11	12	18	21	23	25	25	26	27	26	26	26	24	24	23	22	20	19	19	19	19	27.0	20.2	
29-Apr	18	18	17	18	17	17	16	17	17	16	17	18	21	22	23	23	23	22	20	18	18	17	16	16	16	23.5	18.7	
30-Apr	17	18	20	21	20	19	19	21	23	22	21	22	24	23	24	24	24	23	20	17	16	15	14	14	14	23.7	19.9	



Maximum Hour//Monthly Average	32.8
Total Hours in Month	720
Valid Hours	720
Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Site Pressure

Site Name: Rivermines

Average Interval: 01 Hour

Units: mmHg

Sampling Frequency: 01 Second

2012	Hour	24 Hour																										
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
1-Apr	739	739	739	738	738	738	739	739	738	738	738	737	737	736	735	735	734	735	735	735	735	735	735	735	735	739	737	
2-Apr	735	736	736	736	737	737	737	739	738	739	739	739	739	738	738	737	737	737	737	738	739	739	740	740	740	740	740	738
3-Apr	740	739	740	740	741	741	742	742	742	742	741	741	741	740	740	739	739	739	739	740	740	740	740	741	740	740	742	740
4-Apr	740	739	739	739	739	739	739	739	739	740	740	739	739	738	738	737	737	737	737	738	737	737	737	737	737	737	740	738
5-Apr	737	738	737	737	738	738	739	739	739	740	740	740	741	741	741	741	742	742	742	743	744	744	745	745	745	745	741	741
6-Apr	746	746	746	747	747	748	749	749	749	749	749	749	749	748	748	748	748	748	748	748	748	749	749	749	749	749	748	748
7-Apr	749	749	749	750	750	750	750	750	750	750	750	750	749	749	749	749	749	748	748	748	749	750	750	751	751	751	750	750
8-Apr	751	751	751	752	753	753	753	753	753	753	753	753	752	751	751	750	750	749	749	749	749	749	749	749	749	753	751	751
9-Apr	749	749	748	748	748	749	749	749	749	749	749	749	748	748	747	747	746	746	746	746	746	746	747	747	747	749	748	748
10-Apr	747	747	747	747	747	748	748	749	749	750	749	749	749	748	748	747	747	747	747	747	747	747	748	748	748	750	748	748
11-Apr	749	749	750	750	750	751	752	751	751	751	751	752	751	751	750	750	750	750	750	750	750	750	751	751	751	751	752	750
12-Apr	751	751	751	751	751	751	752	752	752	751	751	750	750	749	748	748	747	747	747	747	747	747	747	748	748	752	749	749
13-Apr	747	747	747	747	747	747	748	747	747	747	747	747	747	747	746	746	745	745	745	745	745	745	745	745	745	745	745	746
14-Apr	745	745	745	744	744	743	743	743	743	745	745	744	743	742	742	741	740	740	740	741	741	741	741	740	740	745	742	742
15-Apr	740	739	739	739	740	739	741	740	740	740	740	740	739	739	738	738	737	737	736	736	739	739	739	739	739	741	739	739
16-Apr	739	739	739	740	741	742	744	743	745	746	746	746	746	747	747	747	747	747	747	748	749	749	750	750	751	751	751	746
17-Apr	751	751	751	751	752	752	752	752	753	753	753	753	752	752	752	751	751	751	750	750	751	751	751	751	751	753	751	751
18-Apr	750	750	750	750	750	750	750	750	751	751	750	750	749	748	748	747	747	746	746	745	745	745	745	745	745	745	751	748
19-Apr	745	745	745	745	745	745	745	745	746	746	744	744	743	742	742	741	740	739	739	740	740	740	740	739	739	746	742	
20-Apr	739	738	738	738	738	738	738	740	739	741	741	742	742	743	743	743	743	743	743	744	744	745	745	745	745	742	742	
21-Apr	745	745	745	745	745	745	745	745	745	745	745	745	745	744	744	744	743	743	743	743	744	744	744	744	744	745	744	744
22-Apr	743	743	743	743	742	742	742	742	743	743	743	743	744	744	744	744	744	745	745	746	746	747	747	747	748	748	744	744
23-Apr	748	747	747	747	747	748	748	748	748	748	747	747	747	746	746	745	745	744	744	744	744	744	744	744	744	744	748	746
24-Apr	743	743	743	743	743	743	743	743	743	742	742	741	740	739	738	737	737	737	736	736	737	737	737	737	737	740	740	
25-Apr	737	737	737	737	737	737	737	737	736	737	736	736	736	735	734	734	734	734	734	734	734	735	735	736	736	737	736	736
26-Apr	736	737	737	737	738	739	740	740	741	741	742	742	742	742	742	742	742	742	742	742	743	743	744	744	745	745	741	
27-Apr	745	745	745	746	746	747	747	747	747	747	747	746	746	746	745	745	743	743	742	742	743	743	743	742	747	745	745	
28-Apr	741	741	741	741	741	741	741	741	741	741	741	741	742	741	741	741	741	741	741	742	742	743	744	744	744	742	742	742
29-Apr	745	744	744	745	745	745	745	745	746	746	746	746	746	745	745	744	743	743	744	744	744	744	744	744	746	745	745	
30-Apr	744	744	743	744	744	744	744	744	744	744	743	743	743	743	743	743	743	743	743	743	744	744	744	744	744	744	744	744

BARR	Maximum Hour//Monthly Average	753
	Total Hours in Month	720
	Valid Hours//Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Precipitation

Site Name: Rivermines

Average Interval: 01 Hour
Sampling Frequency: 01 Second

2012	Hour	24 Hour																									
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.47	0.01	0.00	0.00	0.03	0.01	0.47	0.55
4-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.06	0.07	0.00	0.00	0.01	0.75	0.90
5-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.09	0.30	0.04	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.53
14-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.08
15-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.11	0.18	0.26	0.07	0.02	0.26	0.77
16-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.09	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.28
21-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22-Apr	0.00	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	
23-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	
26-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.08	
28-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30-Apr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03		

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Maximum Hour//Monthly Total	0.75
Total Hours in Month	720
Valid Hours//Percent Data Captured	720
	100.0%